

Microsoft Excel 2013

Pivot Tables & Pivot Table Charts

A **pivot table report** allows you to analyze and summarize a million rows of data in Excel 2013 without entering a single formula. Pivot Tables let you select data fields to compare, or “pivot”, your information in ways that pare down large data tables into specific, useful summaries using filtering and sorting options. Pivot tables are incredibly flexible, and there are hundreds of different styles of reports you can create. Pivot Tables have **Report Zones** that control the page layout for the report.

Pivot Charts are a visual representation of Pivot Table results, displaying summaries in a variety of chart and graph formats. Pivot Charts make it easy to identify important trends and present this data to others. Like PivotTables, PivotCharts are much easier to create in the new user interface. All of the filtering improvements are also available for PivotCharts. When you create a PivotChart, specific PivotChart tools and context menus are available so that you can analyze the data in the chart. You can also change the layout, style, and format of the chart or its elements the same way that you can for a regular chart. In Office Excel 2013, the chart formatting that you apply is preserved when you make changes to the PivotChart, which is an improvement over the way it worked in earlier versions of Excel.

The screenshot displays an Excel spreadsheet with a PivotTable and a PivotChart. The PivotTable is located in the top-left area, showing sales data for various products across four quarters. The PivotChart, a 3D pie chart titled "Sales for Quarter 1", is positioned in the bottom-right area, showing the distribution of sales for that quarter. Several toolbars and report zones are highlighted with blue boxes and labeled:

- Pivot Table:** A blue box highlights the PivotTable itself.
- Available Fields:** A blue box highlights the "Available Fields" task pane on the right side of the spreadsheet.
- Filter Tools:** A blue box highlights the "Filter Tools" task pane located above the PivotChart.
- Pivot Chart:** A blue box highlights the PivotChart.
- PivotChart Fields:** A red box highlights the "PivotChart Fields" task pane on the right side of the PivotChart.
- Report Zones:** A blue box highlights the "Report Zones" task pane on the right side of the PivotChart.

Region	West				
Sum of Sales	Column Labels				
Row Labels	Qtr1	Qtr2	Qtr3	Qtr4	Grand Total
Apples	\$45,000.00	\$46,000.00	\$46,500.00	\$48,500.00	\$186,000.00
Bananas	\$15,712.00	\$16,345.00	\$17,200.00	\$18,920.00	\$68,177.00
Grapefruit	\$24,314.00	\$27,923.00	\$29,422.00	\$30,531.00	\$112,190.00
Oranges	\$45,892.00	\$46,982.00	\$47,822.00	\$45,092.00	\$185,788.00
Pears	\$52,924.00	\$54,092.00	\$59,224.00	\$216,484.00	\$382,724.00
Grand Total	\$183,842.00	\$191,342.00	\$200,168.00	\$359,527.00	\$934,879.00

The PivotChart "Sales for Quarter 1" shows a 3D pie chart with the following segments: Apples (blue), Bananas (red), Grapefruit (green), Oranges (purple), and Pears (cyan). The "Report Zones" task pane shows the following configuration:

- FILTERS:** Region (dropdown)
- LEGEND (SERIES):** Quarter (dropdown)
- AXIS (CATEG...):** Product (dropdown)
- VALUES:** Sum of Sales (dropdown)

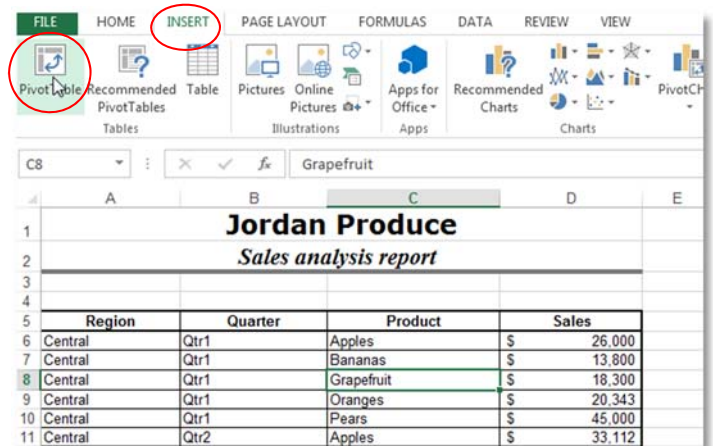
Creating a Pivot Table

PivotTables and PivotCharts are most useful when applied to large tables of raw data. The requirement is that you have unique headings in the first row, and no blank rows or blank columns in the data. For best results, keep your numeric columns filled with numeric data and replace any blank cells with a zero. The column labels will be used by the PivotTable to identify and name data fields

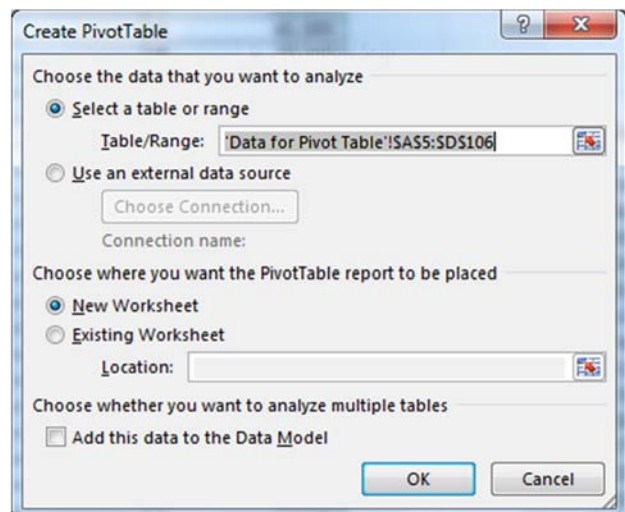
1. Select one cell in the dataset

	Region	Quarter	Product	Sales
6	Central	Qtr1	Apples	\$ 26,000
7	Central	Qtr1	Bananas	\$ 13,800
8	Central	Qtr1	Grapefruit	\$ 18,300
9	Central	Qtr1	Oranges	\$ 20,343
10	Central	Qtr1	Pears	\$ 45,000
11	Central	Qtr2	Apples	\$ 33,112
12	Central	Qtr2	Bananas	\$ 15,080
13	Central	Qtr2	Grapefruit	\$ 25,034

2. From the **Insert ribbon**, choose the top half of the PivotTable icon.
3. Excel will predict that your data includes the current region around your selected cell. Make sure that this is what you want and then click OK.
4. To include a field in the pivot table summary, simply checkmark the field in the Pivot Table Field List.
5. Text Fields will automatically be added to the **Row Label Zone**. Numeric fields will be added to the **Values Zone**.



The “create pivot table” window opens with the table showing the range of cells in the data set. By default the pivot table will be created on a new worksheet.



This report shows the **Products** in the row labels zone, the **Quarter** in the column labels zone and the data is summarized using the **Sum Function** in the values zone. The **Region** field has been placed in the Report Filter zone. One could create a query to analyze the activity of one particular Region.

It is easy to change a pivot table report. Simply check or uncheck fields in the top half of the Pivot Table field list. You can always re-arrange the order of fields by dragging the fields around the bottom half of the field list.

Region	Qtr1	Qtr2	Qtr3	Qtr4	Grand Total
Apples	138662	149449	144931	147804	580846
Bananas	80115	82151	84346	84320	330932
Grapefruit	150837	166792	169073	168926	655628
Oranges	173047	178253	181556	177227	710083
Pears	238684	240398	250219	405929	1135230
Grand Total	781345	817043	830125	984206	3412719

New for Excel 2013

In Excel 2013, there is now a *Recommended Pivot Tables* button located next to the standard *Pivot Table* button. After clicking the *Recommended Pivot Tables* button, a dialog box similar to the one shown on the right appears. Based on the data chosen, Excel makes recommendations on the type of Pivot Table to create. To use one of the recommended tables, select it then click the *OK* button.

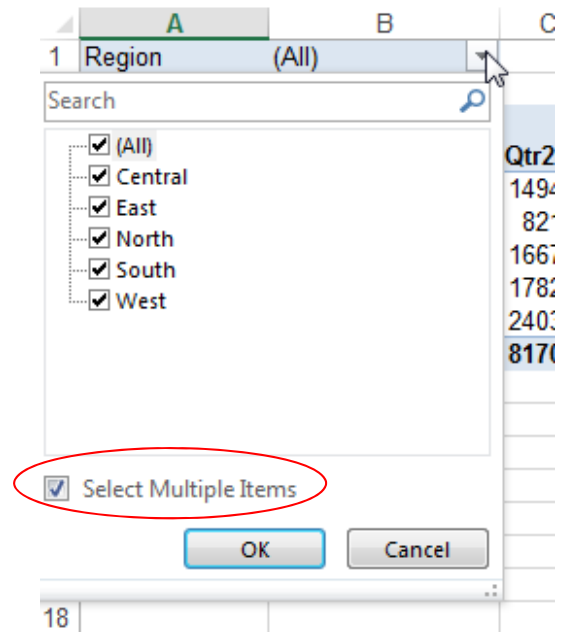
Row Labels	Sum of Sales
Central	539298
East	615828
North	672584
South	650130
West	934879
Grand Total	3412719

Row Labels	Sum of Sales
Qtr1	781345
Qtr2	817043
Qtr3	830125
Qtr4	984206
Grand Total	3412719

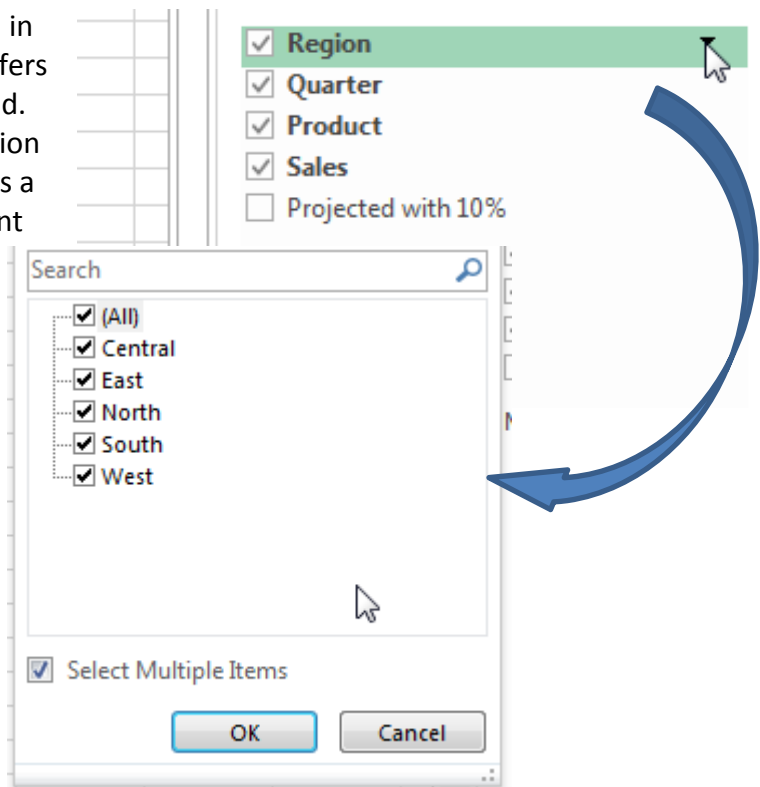
Row Labels	Sum of Sales
Apples	580846
Bananas	330932
Grapefruit	655628
Oranges	710083
Pears	1135230
Grand Total	3412719

Filtering or Sorting Data in a Pivot Table

The Region field has been placed in the **Report Filter zone**. As you can see from the example on the right, all of the Regions are represented in the report but if you wanted to analyze the performance of only a single Region, you could uncheck all and select only those reps you want to see in the report. One of the new features to pivot tables is the option to select multiple items to query.



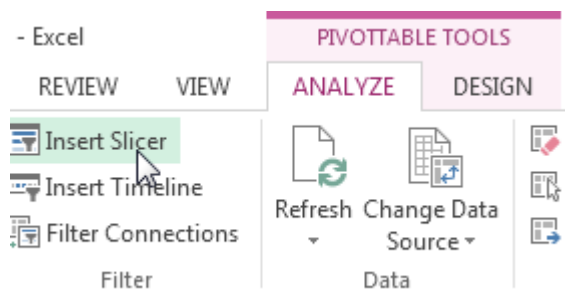
When you “hover” your mouse over a field in one of the zones, you’ll see a menu that offers choices where you can sort or filter the field. Use filters to narrow the range of information displayed in a PivotTable report. Filtering is a good way to emphasize or ‘get at’ important or relevant information within a larger set of data. Label filters will allow you to filter using comparative criteria.



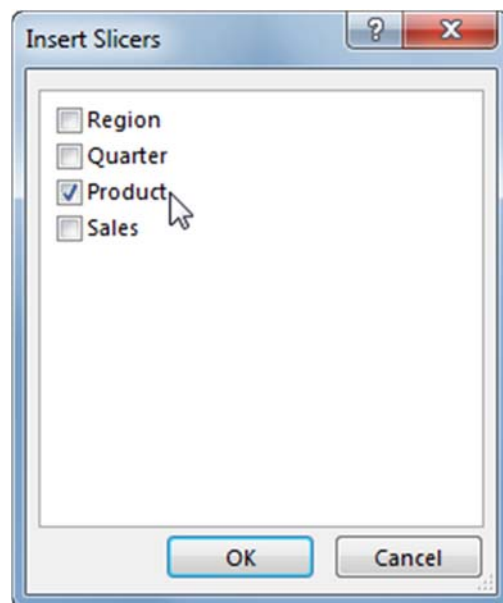
Slicers

Slicers are visual filters that can be attached to PivotTables, PivotCharts, and other data sources.

1. Click on the **Insert Tab** and click Slicer in the filter group.



2. In the **Insert Slicers** dialog box, check the box beside each field you want to create a slicer for. Click OK to place the slicer box(es) on your worksheet



3. In the Slicer box, click a button to filter the data
4. Making changes to Slicers:

- a. To remove a Slicer filter click the *Remove Filter* icon in the Slicer Box.
- b. To edit Slicer properties, right-click the Slicer and choose *Slicer Settings* from the menu. Make your changes then click the *OK* button.
- c. More Slicer options are available, including a Style Gallery, are available under the *Options* tab which appears on the *Ribbon*.

Note in this example, multiple Slicers were created.

	A	B	C	D
1				
2	Region	(All)		
3	Quarter	Qtr1		
4				
5	Row Labels	Sum of Sales	Average of Sales	Sum of Projected with 10%
6	Apples	\$138,662.00	\$27,732.40	\$152,528.20
7	Grand Total	\$138,662.00	\$27,732.40	\$152,528.20
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

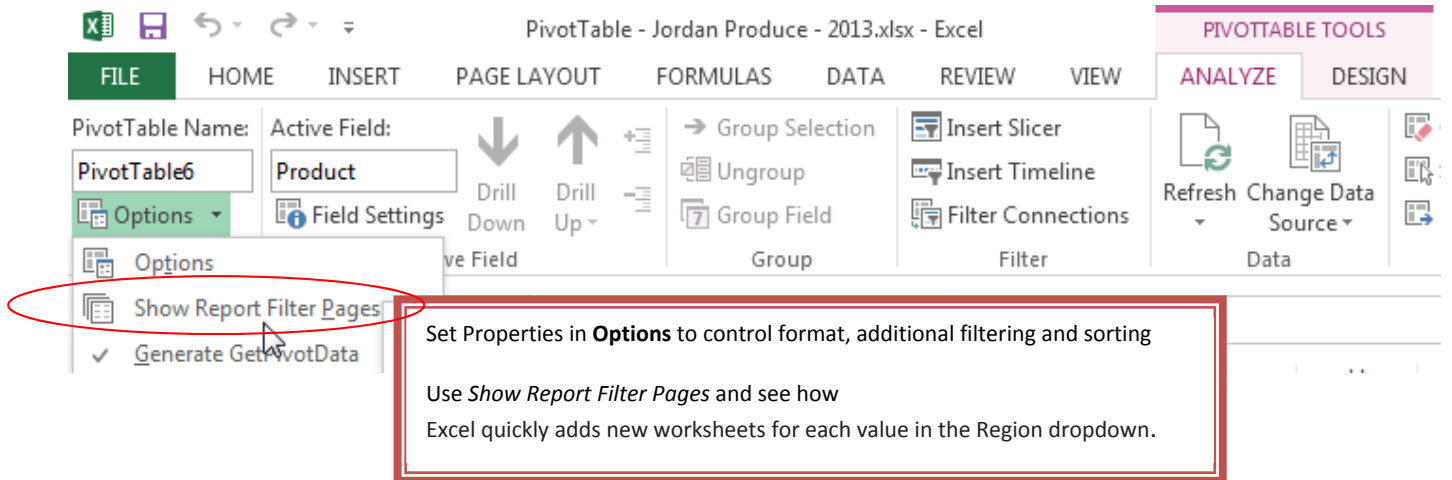
Product
Apples
Bananas
Grapefruit
Oranges
Pears

Quarter
Qtr1
Qtr2
Qtr3
Qtr4

Designing PivotTables

Changing a PivotTable's visual elements can highlight areas of particular interest or make the table more presentation-ready. When the PivotTable is active there will be "2" additional PivotTable tools available: **Options and Design**. In the Options mode there are designated categories that allow you to display or remove field headers, or to group dates into months and years. In Options you can create filtered report pages based on fields in the report filter zone.

Show Report Filter Pages



PivotTable Name: PivotTable6
Active Field: Product

Options
Field Settings
Show Report Filter Pages
Generate GetPivotData

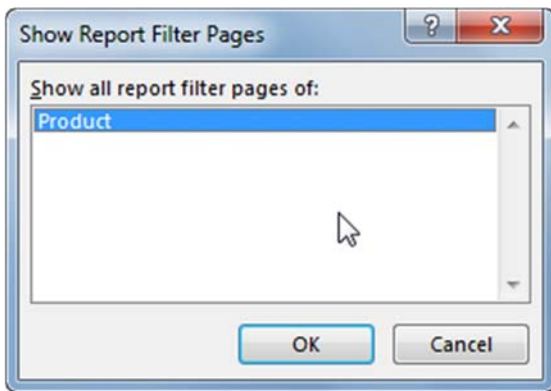
Group Selection
Ungroup
Group Field

Insert Slicer
Insert Timeline
Filter Connections

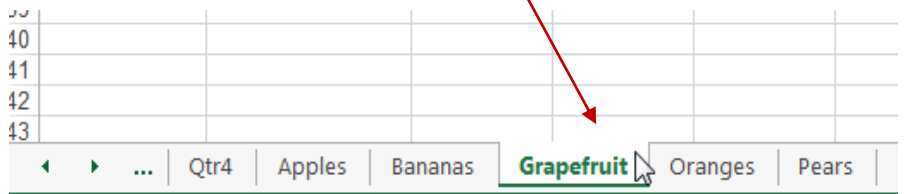
Refresh
Change Data Source
Data

Set Properties in **Options** to control format, additional filtering and sorting

Use *Show Report Filter Pages* and see how Excel quickly adds new worksheets for each value in the Region dropdown.



	A	B	C	D	E	
1	Product	Grapefruit				
2						
3	Sum of Sales	Column Labels				
4	Row Labels	Central	East	North	South	West
5	Qtr1	\$18,300.00	\$33,645.00	\$37,643.00	\$36,935.00	\$24,...
6	Qtr2	\$25,034.00	\$36,454.00	\$38,459.00	\$38,922.00	\$27,...
7	Qtr3	\$28,679.00	\$34,745.00	\$37,832.00	\$38,395.00	\$29,...
8	Qtr4	\$25,655.00	\$36,564.00	\$35,934.00	\$40,242.00	\$30,...
9	Grand Total	\$97,668.00	\$141,408.00	\$149,868.00	\$154,494.00	\$112,...
10						
11						
12						



Grouping

Often, the original data, though accurate, doesn't show well in a final report. The table below shows the Date field data as entered in the database and then placed in the Pivot Table.

Note the chaotic look of the data.

	A	B	C	D	E	F	G
1	Region	(All)					
2							
3	Sum of Sales	Column Labels					
4	Row Labels	Cauliflower	Celery	Corn	Lettuce	Potatoes	Grand Total
5	6/19/2000			\$60,283.64			\$60,283.64
6	8/9/2000			\$39,647.45			\$39,647.45
7	6/30/2001				\$60,514.26		\$60,514.26
8	7/24/2002				\$31,866.23		\$31,866.23
9	10/27/2002	\$58,550.48					\$58,550.48
10	5/9/2003					\$54,053.35	\$54,053.35
11	6/28/2003			\$80,513.85			\$80,513.85
12	8/6/2003					\$79,123.15	\$79,123.15
13	9/11/2003					\$82,513.54	\$82,513.54
14	9/26/2003				\$85,780.58		\$85,780.58
15	10/18/2004	\$91,581.47					\$91,581.47
16	11/30/2004		\$43,866.97				\$43,866.97
17	2/9/2005		\$9,174.43				\$9,174.43
18	1/4/2006	\$64,011.27					\$64,011.27
19	1/30/2006			\$19,341.94			\$19,341.94
20	9/22/2007				\$8,753.32		\$8,753.32
21	10/3/2007					\$76,419.27	\$76,419.27
22	5/23/2008		\$6,963.12				\$6,963.12
23	10/24/2008			\$23,768.91			\$23,768.91
24	2/26/2009		\$57,268.92				\$57,268.92
25	5/30/2009		\$93,962.16				\$93,962.16
26	8/14/2009	\$62,145.55					\$62,145.55
27	6/5/2010					\$97,554.10	\$97,554.10
28	11/8/2010	\$49,981.67					\$49,981.67
29	10/14/2011				\$24,327.94		\$24,327.94
30	Grand Total	\$326,270.43	\$211,235.60	\$223,555.79	\$211,242.32	\$389,663.40	\$1,361,967.54
31							

Select one of the cells with a date and choose *Group Field* from the *PivotTable Tools Options* ribbon.

PivotTable Name: PivotTable19
Active Field: Date

Grouping Dialog:
 Auto
 Starting at: 6/19/2000 10:41:55
 Ending at: 10/14/2011 9:29:57
 By:
 Seconds
 Minutes
 Hours
 Days
 Months
 Quarters
 Years
 Number of days: 1

Region	(All)			
Sum of Sales	Column Labels			
Row Labels	Cauliflower	Celery	Corn	Lettuce
6/19/2000			\$60,283.64	
8/9/2000			\$39,647.45	
6/30/2001				
7/24/2002				
10/27/2002	\$58,550.48			
5/9/2003				
6/28/2003			\$80,513.85	
8/6/2003				
9/11/2003				
9/26/2003				
10/18/2004	\$91,581.47			
11/30/2004		\$43,866.97		
2/9/2005		\$9,174.43		
11/11/2006	\$61,011.27			\$9,174.43

You will see the Grouping window displayed. You can choose how to summarize your dates; you can select years, quarters, months AND you can group “days” in a range of dates. An example would be looking at invoices in a “7” day range. An added advantage is that you’ve created new fields that can enhance the report.

In this example Dates have been grouped into Quarters. The final result is shown below:

PivotTable Name: PivotTable19
Active Field: Date

Region	(All)					
Sum of Sales	Column Labels					
Row Labels	Cauliflower	Celery	Corn	Lettuce	Potatoes	Grand Total
Qtr1	\$64,011.27	\$66,443.35	\$19,341.94			\$149,796.57
Qtr2		\$100,925.28	\$140,797.49	\$60,514.26	\$151,607.45	\$453,844.47
Qtr3	\$62,145.55		\$39,647.45	\$126,400.13	\$161,636.69	\$389,829.81
Qtr4	\$200,113.61	\$43,866.97	\$23,768.91	\$24,327.94	\$76,419.27	\$368,496.69
Grand Total	\$326,270.43	\$211,235.60	\$223,555.79	\$211,242.32	\$389,663.40	\$1,361,967.54

PivotTable Design Tools

The Design ribbon offers a gallery where you can quickly apply a format to the pivot table. To change a PivotTable's visual style, click anywhere in the PivotTable to select it. In the Under the design tab, click on a thumbnail from the Pivot Table styles gallery to choose a new style. Click "here" to open a window with more options. In 2007 you get "live preview", where the format is applied to you report as a preview.

To change a PivotTable's layout: click anywhere in the PivotTable to select it. Under the design tab click **Report Layout** in the report layout group.

Product	Oranges					
Sum of Sales	Column Labels					
Row Labels	Central	East	North	South	West	Grand Total
Qtr1	\$20,343.00	\$27,678.00	\$38,892.00	\$40,242.00	\$45,892.00	\$173,047.00
Qtr2	\$24,000.00	\$25,678.00	\$40,569.00	\$41,024.00	\$46,982.00	\$178,253.00
Qtr3	\$23,034.00	\$30,436.00	\$37,942.00	\$42,322.00	\$47,822.00	\$181,556.00
Qtr4	\$19,765.00	\$35,665.00	\$35,893.00	\$40,812.00	\$45,092.00	\$177,227.00
Grand Total	\$87,142.00	\$119,457.00	\$153,296.00	\$164,400.00	\$185,788.00	\$710,083.00

To add **banded rows or columns** to a PivotTable: click anywhere in the PivotTable to select it. Under the design tab click Banded Rows and Banded Columns check box in the PivotTable style options group.

Grand Totals

To display or remove grand totals in a PivotTable report: click anywhere in the PivotTable to select it. Under the design tab click **Grand Totals** in the Layout group and choose the desired option from the menu.

To add a blank line between groups: click anywhere in the PivotTable to select it. Under the design tab click **Blank Rows** in the layout group and choose Insert Blank Line after Each Item from the menu. To remove blank lines, choose Remove Blank Line after Each Item from the menu.

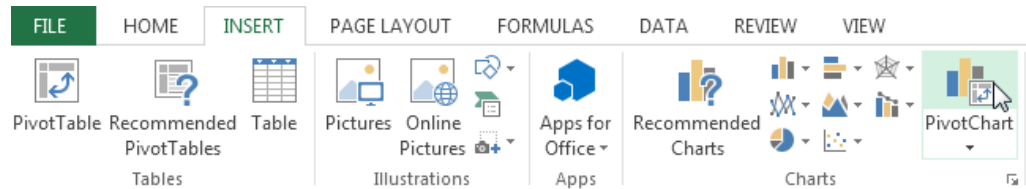
	North	South	West	
Qtr1	\$13,000.00	\$16,955.00	\$15,435.00	\$15,712.00
Qtr2	\$12,821.00	\$18,291.00	\$17,834.00	\$18,200.00
Qtr3	\$12,821.00	\$18,291.00	\$17,834.00	\$18,200.00
Qtr4	\$16,363.00	\$15,345.00	\$16,710.00	\$16,982.00
Grand Total	\$55,806.00	\$68,675.00	\$63,266.00	\$63,894.00

Creating a Basic PivotChart

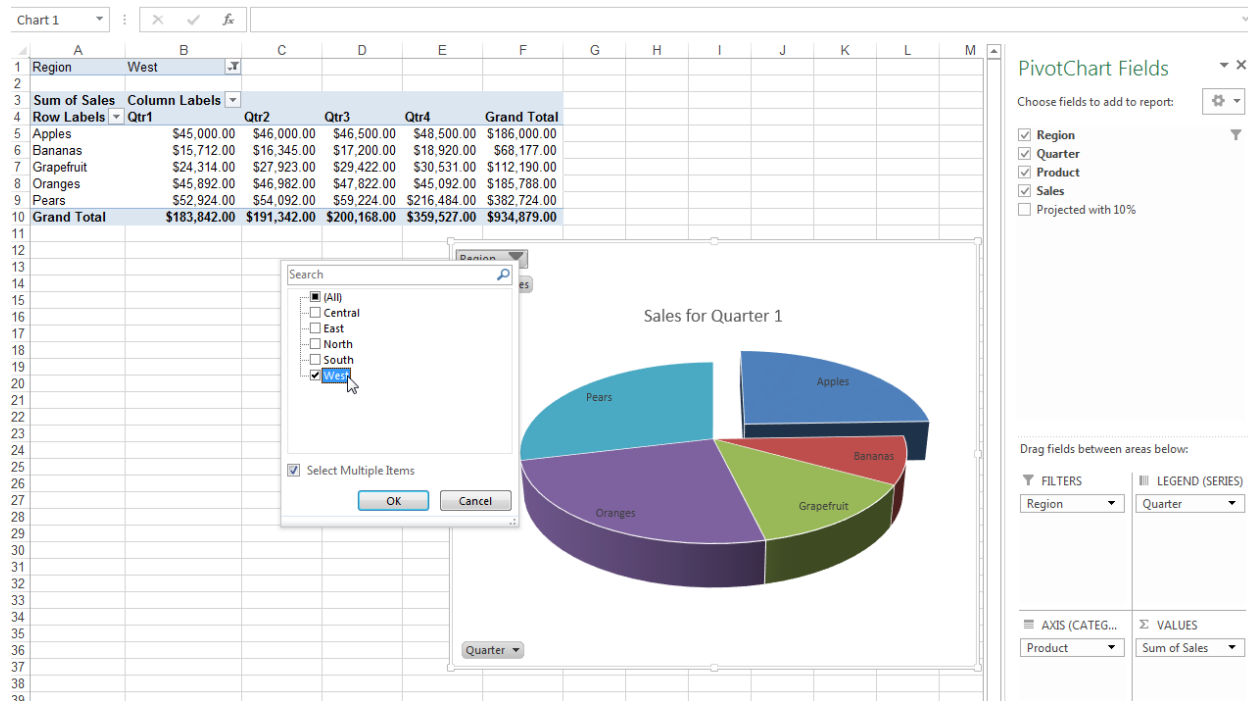
PivotCharts provide a graphic representation of data relationships and trends, drawn from the way information is arranged in a PivotTable report.

To add a PivotChart: click anywhere in an existing PivotTable to select it. Under the options tab click **PivotChart** in the **Tools** group.

In the **Insert Chart** dialog box, select a desired chart type (**column, line, pie**). Click ok to insert the selected chart. When you select the PivotChart, the **PivotChart Filter Pane** will display by default. Once your chart is active, you will have “3” tabs in Chart Tools; Design, Layout, and Format, where you can format PivotCharts and add or remove PivotChart Elements.



	A	B	C	D	E
5	Region	Quarter	Product	Sales	
6	Central	Qtr1	Apples	\$ 26,000	
7	Central	Qtr1	Bananas	\$ 13,800	
8	Central	Qtr1	Grapefruit	\$ 18,300	
9	Central	Qtr1	Oranges	\$ 20,343	



Pivot Table Timeline

For data with date or time fields, the *Timeline* tool creates a graphical, interactive tool which acts as a filter. In the example below, the dates are grouped into Quarters. By sliding the bar across the Timeline, the fields and totals change based on the activity that happened at the time indicated by the slider.

To create a Timeline:

1. Click in a field with time or date data.
2. From the Filter Group in PivotTable Tools Menu, click the Insert Timeline button.
3. In the dialog boxes, choose the timeframe and increments for the timeline
4. Click the OK button.
5. The Timeline tool appears on the worksheet.

To use the Timeline:

1. Click and drag the slider in the Timeline box. As the slider moves across the time increments, the Pivot Table changes based on any activity that may have occurred.
If no data appears, then activity hasn't occurred in the time chosen.

The screenshot shows the Microsoft Excel interface with the PivotTable Tools ribbon open. The PivotTable is set to show sales data for Potatoes. The Timeline tool is visible, showing a date range from Q3 2008 to Q3 2010, with the current selection set to Q2 2010.

Region	All		
Sum of Sales	Column Labels		
Row Labels	Potatoes	Grand Total	
6/5/2010 16:00	\$97,554.10	\$97,554.10	
Grand Total	\$97,554.10	\$97,554.10	

Timeline tool settings:

- Date: Q2 2010
- Increment: QUARTERS
- Range: 2008, 2009, 2010
- Current Selection: Q2 2010